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Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (original) An image processing method for generating TAG information based on inclusion information which indicates an existence of significant data in code blocks for each of sub-bands, according to JPEG2000 standard, comprising the steps of:

(a) accepting the inclusion information of the code blocks in a predetermined sequence in units of code blocks amounting to a number which is smaller than a number of code blocks of sub-bands in all levels; and

(b) immediately generating and outputting TAG information corresponding to the accepted inclusion information.

2. (original) The image processing method as claimed in claim 1, wherein said step (a) inputs the inclusion information of the code blocks of all level-2 and level-3 sub-bands, the inclusion information of all code blocks of a level-1 sub-band 1HL, the inclusion information of all code blocks of a level-1 sub-band 1LH, and the inclusion information of all code blocks of a level-1 sub-band 1HH, in a predetermined sequence.

3. (original) The image processing method as claimed in claim 1, further comprising the steps of:

(c) accepting data of numbers of zero-bit-planes in a predetermined sequence in units of code blocks amounting to a number which is smaller than a number of code blocks of sub-bands

of all levels, said zero-bit-planes being bit-planes in which all significant bits of the code blocks in each of the sub-bands are zero; and

(d) immediately generating and outputting ZERO-TAG information corresponding to the accepted numbers of zero-bit-planes, according to the JPEG2000 standard.

4. (original) The image processing method as claimed in claim 3, wherein said step (c) inputs the data of the number of zero-bit-planes of the code blocks of all level-2 and level-3 sub-bands, the data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1HL, the data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1LH, and the data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1HH, in a predetermined sequence.

5. (original) An image processing method for generating ZERO-TAG information based on data of numbers of zero-bit-planes in which all significant bits of code blocks in each of sub-bands are zero, according to JPEG2000 standard, comprising the steps of:

(a) accepting data of the numbers of zero-bit-planes in a predetermined sequence in units of code blocks amounting to a number which is smaller than a number of code blocks of sub-bands of all levels; and

(b) immediately generating and outputting ZERO-TAG information corresponding to the accepted numbers of zero-bit-planes.

6. (original) The image processing method as claimed in claim 5, wherein said step (a) inputs the data of the number of zero-bit-planes of the code blocks of all level-2 and level-3 sub-

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bands, the data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1HL,

the data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1LH, and the

data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1HH, in a

predetermined sequence.

7. (original) An image processing apparatus comprising:

a TAG information analyzing circuit to generate TAG information based on inclusion

information which indicates an existence of significant data in code blocks for each of sub-

bands, according to JPEG2000 standard,

said TAG information analyzing circuit accepting the inclusion information of the code

blocks in a predetermined sequence in units of code blocks amounting to a number which is

smaller than a number of code blocks of sub-bands in all levels, and immediately generating and

outputting TAG information corresponding to the accepted inclusion information.

8. (original) The image processing apparatus as claimed in claim 7, wherein said TAG

information analyzing circuit inputs the inclusion information of the code blocks of all level-2

and level-3 sub-bands, the inclusion information of all code blocks of a level-1 sub-band 1HL,

the inclusion information of all code blocks of a level-1 sub-band 1LH, and the inclusion

information of all code blocks of a level-1 sub-band 1HH, in a predetermined sequence.

9. (original) The image processing apparatus as claimed in claim 7, further comprising:

a ZERO-TAG information analyzing circuit to generate ZERO-TAG information based

on data of numbers of zero-bit-planes in which all significant bits of code blocks in each of sub-

bands are zero, according to JPEG2000 standard,

said ZERO-TAG information analyzing circuit accepting data of numbers of zero-bit-planes in a predetermined sequence in units of code blocks amounting to a number which is smaller than a number of code blocks of sub-bands of all levels, and immediately generating and outputting ZERO-TAG information corresponding to the accepted numbers of zero-bit-planes.

10. (original) The image processing apparatus as claimed in claim 9, wherein said ZERO-TAG information analyzing circuit inputs the data of the number of zero-bit-planes of the code blocks of all level-2 and level-3 sub-bands, the data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1HL, the data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1LH, and the data of the number of zero-bit-planes of all code blocks of a level-1 sub-band 1HH, in a predetermined sequence.

11. (original) An image processing apparatus comprising:

a ZERO-TAG information analyzing circuit to generate ZERO-TAG information based on data of numbers of zero-bit-planes in which all significant bits of code blocks in each of sub-bands are zero, according to JPEG2000 standard,

said ZERO-TAG information analyzing circuit accepting data of the numbers of zero-bit-planes in a predetermined sequence in units of code blocks amounting to a number which is smaller than a number of code blocks of sub-bands of all levels, and immediately generating and outputting ZERO-TAG information corresponding to the accepted numbers of zero-bit planes.

12. (original) The image processing apparatus as claimed in claim 11, wherein said

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ZERO-TAG information analyzing circuit inputs the data of the number of zero-bit-planes of the

code blocks of all level-2 and level-3 sub-bands, the data of the number of zero-bit-planes of all

code blocks of a level-1 sub-band 1HL, the data of the number of zero-bit-planes of all code

blocks of a level-1 sub-band 1LH, and the data of the number of zero-bit-planes of all code

blocks of a level-1 sub-band 1HH, in a predetermined sequence.

13. (new) The image processing apparatus as claimed in claim 7, wherein in image

compression said TAG information analyzing circuit generates the TAG information for a

predetermined number of code blocks, prior to accepting the inclusion information of other codes

blocks in said all levels, said predetermined number being less than the total number of code

blocks of the sub-bands in said all levels.

14. (new) The image processing apparatus as claimed in claim 11, wherein in image

compression said ZERO-TAG information analyzing circuit generates the ZERO-TAG

information for a predetermined number of code blocks, prior to accepting the data of the

numbers of zero-bit-planes in other codes blocks in said all levels, said predetermined number

being less than the total number of code blocks of the sub-bands in said all levels.

15. (new) The image processing method as claimed in claim 1, wherein in image

compression said TAG information is generated and output in step (b) for a predetermined

number of code blocks, prior to accepting the inclusion information of other codes blocks in said

all levels, said predetermined number being less than the total number of code blocks of the sub-

bands in said all levels.

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16.   (new)   The image processing method as claimed in claim 1, wherein in image

compression said ZERO-TAG information is generated and output in step (h) for a

predetermined number of code blocks, prior to accepting the data of the numbers of zero-bit-

planes in other codes blocks in said all levels, said predetermined number being less than the

total number of code blocks of the sub-bands in said all levels.